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ABSTRACT

This study asked 230 regular education teachers about their educational practices in teaching students with Down syndrome within their mainstream classes. Teachers completed surveys that asked about background experience; preparation for inclusion and the transition process; classroom information (curriculum, class arrangement, therapies, and support services); and classroom management, instruction, and behavioral strategies. Analysis of data from 120 surveys indicated that most of the students with Down syndrome attended their neighborhood schools and received some type of related services. Most of the classes had an inclusion aide who also worked with other students. Teachers considered the inclusion of children with Down syndrome successful, though there was room for improvement. Teachers found the experience challenging, rewarding, and of great value to their general education students as well as the child with Down syndrome. They noted that extra work was necessary for preparing modified class assignments, homework, and evaluation procedures. The best learning arrangements were 1:1 and small group instruction, with peer tutors, computers, and team teaching was sometimes effective. Praise was the best behavior management strategy. (Contains 10 references.) (SM)

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Successful Daily Practices of Inclusion Teachers of Children With Down Syndrome

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With our growing concern for diversity in education, inclusion has been accepted as the moral, legal and practical way to approach special education reform. Much research has been done on the efficacy of inclusion, yet few studies allow regular educators to voice their opinions on the inclusion process (Ericson, D.P. and Ellett, F.J., 1990; Gersten, R. and Woodward, J., 1990).

The purpose of this study was to ask practical questions of regular education teachers, who are often left out of the conceptualization/ decision making process, yet are faced with the daily implementation of this policy. Of particular focus here are the strategies and methods that these teachers have successfully implemented in the classroom with the entire student body.

Since there are so many variables in the diverse process of education across our country, children with Down syndrome were chosen to be the focus here, because they are readily diagnosed in infancy, and were often the first to be included in regular classes in school. The hope was to minimize some of the varying characteristics associated with education of multiple categories of differing disabilities. The intent of this paper is not to lump all individuals with Down syndrome together, but to recognize that even though there is a broad range of functioning between individuals with Down syndrome, there will be more stable parameters to view for research involving instructional methodology and learning characteristics. Children with Down syndrome have learning styles that usually require more thought to curricular choices and experiences, which previously has prompted their placement in segregated educational programs, consisting of specialized services and smaller groupings. For the past twenty years, parent of children with Down syndrome have felt that their children's education in a more specialized program was isolating, and they contacted the National Down Syndrome Society to request information on what existing inclusion practices were.

Method

The National Down Syndrome Society supported this study with a list of affiliates in all fifty states as well as the commonwealth of Puerto Rico. Three hundred and twenty questionnaires were sent to regular education teachers who had a student with Down syndrome included in their class. The design of the questionnaire contained

four levels of questioning: a) background experience, to include amount of teaching experience, knowledge of special education and knowledge/attitude toward inclusion, b) preparation for inclusion and the transition process, c) classroom information on curriculum, class arrangement, therapies and support services, and d) classroom management, instruction and behavioral strategies. These were previously compared to parent reports of changes within their child for areas of communication, social skills, independence and self-esteem (Wolpert, 1998). The objective was to find out what works successfully with inclusion of children with Down syndrome and what doesn't, according to the point of view of the regular education teacher. The teachers were asked to rate different types of learning arrangements, instructional and behavior management strategies on a scale of 1 (not effective) to 5 (very effective).

Results

From the 320 solicited questionnaires, 120 responses were returned. A detailed analysis looked at statistical correlations between all independent variables (teacher characteristics, preparation, class size, curricular methods, instructional strategies, etc.) Groups of independent variables were then chosen based on their individual correlations to the dependent variable being analyzed (reported successful inclusion by parents), taking care to eliminate independent variables that showed high correlations to each other (multicollinearity). Some descriptive statistics of the population are as follows: The average child age was 9 years 3 months (range 4 years old to 18 years old). The average grade level was 3rd grade 8th month (range was pre-K to 12th grade). 88% of the children attended their local neighborhood school. The average class size was 25 pupils (ranging from 16 through 30). 56% of the classes contained more than one included student with disabilities beside the child with Down syndrome. The average class had 2 other children with some form of special learning need, as well as the child with Down syndrome. 30% of the classes had team teaching, and 25% of these teamed up a regular education teacher with a special education teacher. 51% of the regular education teachers reported consulting with a special education teachers during the inclusion experience. 49% of the teachers reported that they used peer tutors. 32% of the classes used a resource room or pull-out service for their included children. 87% of the classes had an inclusion aide in the classroom, who also worked with other children. In 82% of the cases, the inclusion aide stayed with the child from year to year, which provided stability. 85% of the classes had computers which were used daily. 89% of the

teachers had a bachelor's degree in education, with extra credits toward a master's or second degree. The average number of years experience was 14. 63% had some special education training. 55% of the teachers reported no inclusion preparation from the school district. 94% of the students with Down syndrome received speech services, 62% received occupational therapy and 37% received physical therapy. 46% reported "other" services, typically adaptive physical education and a language development (reading) specialist. These were evenly split (52%) for pull out services and (48%) push in services into the classroom. Regular education teachers reported pull out and push in services having an equal impact on the instructional process.

Table 1 is a listing of the rank order scores of Best Learning Arrangements, Most Effective Place for Instruction, Effective Materials, Best Behavior Management Strategies, Best Methods for Grading and Teacher Requests for Improvement. The best learning arrangements reported were 1:1 and small group instruction. Peer tutors, computers and team teaching were found to be sometimes effective. Large groups and whole class lessons were reported not effective at all for students with Down syndrome. A t test was performed to ensure that the ratings for the top and bottom scores were statistically different. The ranking scores between best and worst learning arrangements were significant ($t=17$; $p < .01$). 49% of the teachers reported that inclusion caused extra work in areas of modifying homework, class assignments, tests, grading procedures and necessitating more contact with the parents. They did not have to modify their behavior management systems for adequate class control. Classroom arrangements were also examined. The most effective instructional place was reported to be students desk area (94%). Teachers in the higher grades (7th grade through 12th grade) preferred the blackboard and overhead projector, while nursery, kindergarten and first grade teachers used predominantly informal sitting arrangements. When asked to rank order what materials work best for instruction of students with Down syndrome, "hands-on" or "real" materials were reported the most effective. The computer, paper and pencil tasks and textbooks were sometimes effective (only in the upper grades), and workbooks were not useful. The ranking score between the most effective and least effective materials used were statistically significant ($t=12$; $p < .01$). 74% of the teachers felt that homework was effective for two reasons: 1) to inform parents about what the child was doing in school, and 2) to give the child the necessary extra practice with basic concepts. Out of all the adults involved with the students with Down syndrome, the regular education teacher and inclusion aide were reported as the most effective

instructors for the child. However, 44% of the teachers also wrote in that peers were extremely effective as instructional agents.

Teachers reported that praise was the best behavior management strategy or motivator for the child with Down syndrome. Material rewards, time out, peer pressure, loss of privilege, and teacher contact with parents were reported as sometimes helpful. Ignoring, reprimands and punishment were not effective at all, possibly because of the student with Down syndrome's inability to link these consequences with their inappropriate behaviors. The ranking score between the most effective behavior management strategy and least effective behavior management strategy was statistically significant ($t=28$; $p<.01$). Grading was determined from participation in class, effort and daily work. Homework and test scores were not related to report card grades of the students with Down syndrome, especially in the elementary grades. The ranking score between the effort of the student (the best) and homework (the least helpful for grading) was statistically significant ($t=18$; $p<.01$). Whether a child was determined to be an active or passive learner had no significant effect on instructional strategies chosen. Teachers also did not feel that there was unfair attention given to the child with Down syndrome. Teacher had high expectations for their students with Down syndrome, and these were unrelated to staff preparation, model of implementation of inclusion and whether or not the students had behavior problems in class. When recommendations for improvement were requested, in order from highest to lowest, teachers desired more 1:1 instructional time, more planning time, and more information on learning characteristics of children with Down syndrome. These results were significant ($t=7$; $p<.01$). 66% rated the experience as more rewarding than they anticipated, both for themselves and other classmates.

Implications for Practice

To conclude, this study indicates that inclusion of children with Down syndrome, as it exists now, is successful according to the regular education teachers, although there is room for improvement. Teachers reported the experience as challenging, rewarding and of great value to their regular education students as well as the child with Down syndrome. Extra work was indicated as necessary for preparation of modified class assignments,

homework and evaluation procedures . Caution should be taken that regular education teachers should prioritize the included students' IEP goals (which may be more social in nature) and not determine effectiveness primarily from the same academic standards as regular education students (Dover, 1992; Hardman, Drew, & Egan, 1996). However, efficacy research on inclusion has already shown that included students show higher academic gains than those kept in segregated settings (Bieme-Smith, Patton and Ittenbach, 1994; Blatt, 1981; Bos and Vaughn, 1998). Most effective methods were individual instruction and small group instruction, especially at the students' desks. Most effective materials were "hands-on" activities or computer assisted instruction. Praise and small rewards were most effective for motivating students, and the best methods reported for grading were class participation and effort, rather than homework and tests. Peer tutors were somewhat helpful for learning in an enjoyable way, as indicated in prior studies (Fields, Leroy and Rivera, 1994; Turnbull, Turnbull, Shank and Leal, 1999). The most common request for improvement to the inclusion model was for more planning time to be built into scheduling as well as the possibility for more 1:1 instruction. This may necessitate the reduction of class size and/or the addition of more staff. It is likely that these results are particular for included students with Down syndrome only, and it is possible that the results were skewed by respondent teachers who have chosen to return their questionnaires.

Table 1**Rank Order Score of Best Strategies for Inclusion of Students with Down Syndrome**

Scores range from 1 (not effective) to 5 (very effective).

	Mean	Standard	t score
	Value	Deviation	Highest/Lowest
Best Learning Arrangement			
Individual	4.4583	1.0603	t = 16.7990 *
Small Group	3.8583	1.1174	
Peer Tutor	3.3917	1.3429	
Computer	2.9833	1.5664	
Team Teaching	2.9500	1.9440	
Large Group	2.4667	1.1071	
Whole Class	2.0500	1.1585	

Most Effective Materials

Concrete Activities	4.2833	1.2035	t = 12.0103 *
Computer	3.4250	1.6786	
Paper And Pencil	2.9750	1.4288	
Textbook	2.6667	1.7166	
Workbook	2.1167	1.5674	
Other	1.0353	1.9606	

	Mean	Standard	t score
	Value	Deviation	Highest/Lowest
Best Behavioral Management Strategies			
Praise	4.6417	0.5768	t = 27.6152 *
Material Rewards	3.4000	1.6109	
Contacting Parent	3.3000	1.6933	
Loss Of Privilege	3.1500	1.5912	
Time Out	3.1083	1.5492	
Peer pressure	2.6417	1.4883	
Reprimands	2.4500	1.2425	
Ignoring	2.2083	1.3652	
Punishment	1.6583	1.3750	
Lower Grade	1.3500	1.1714	

Best Methods for Grading

Effort	4.4833	0.9872	t = 18.1197 *
Daily Work	4.2000	1.1924	
Physical Participation	4.0833	1.2063	
Verbal Participation	3.5917	1.5584	
Tests	2.0917	1.4260	
Homework	1.8000	1.2873	

	Mean	Standard	t score
	Value	Deviation	Highest/Lowest
Teacher Requests for Improvement			
Individual Instruction	3.9583	1.3182	t = 7.3235 *
More Planning Time	3.8917	1.5173	
Info Learning Characteristics	3.7083	1.2990	
Additional Help	3.4500	1.6493	
Peer Tutoring	3.2833	1.2911	
Support School Administration	2.8750	1.5260	
Input From Parents	2.5583	1.5107	
Less Paperwork *	2.5333	1.6750	

* significant at .01 level

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